

Managing Environmental Management and Corporate Strategy: Framework and Instruments

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Abstract

Environmental management is being increasingly seen as an important management task. The integration of environmental concerns into business functions can allow companies to find new opportunities and to reduce their risks and liabilities. Consequently, being a possible noteworthy determinative of companies' competitive position, with the capability to ensure or even increase companies' value, environmental concerns may play an important role in companies' strategy management process. Environmental drives ought not to be neglected in shaping companies strategy and defining corporate mission.

But to integrate the environment in business functions, and to try to apprehend its potential, managers must have tools to accurately evaluate potential environmental impacts on companies' organization and markets. This article tries to analyse a set of instruments (new or adapted ones) that may be able to facilitate the incorporation of environmental concerns into a company's strategic decision making.

Keywords

Environmental Management; Corporate Strategy, Environment Strategy

Introduction

In the new competition scenario, to be winners companies must perform two essential tasks: the acquisition of better-quality corporate strategies and the effective implementation of these strategies. Hence, managers need to be prepared with a complete set of tools and instruments - which allow them to analyse a company's competitive position and its threats as well as opportunities - and need to possess and put into practice strategic thinking, in order to accurately recognize businesses' future evolution, to understand company's capabilities, and to establish guidelines to the organization's future management (Bresciani, Ferraris, 2012). The strategic management approach

offers firms six major advantages: better guidance to the organization as a whole, the increase in the organization's awareness of opportunities and threats, helpful to unify the organization, facilitator of a proactive management posture, available continuously evaluation and adjustment of the business model, and, finally, a good guide assessable for an effective resource allocation along the entire organization (Thompson and Strickland, 2001).

Strategic Analysis and Planning

Currently, environmental management is increasingly thought of as an important management function. In fact, the integration of environmental concerns into business functions can allow companies to find new opportunities (such as cost reductions, efficiency improvements, new markets opening, reputation enhancement and a better means to satisfy stakeholders expectations) and to reduce their risks and liabilities. Therefore, being a possible significant determinant of companies' competitive position and a potential competitive advantage factor, environmental management can ensure and even increase companies' value (Haveman and Dorfman, 1999; Yang, Hong, Modi, 2011; Lo, Yeung, Cheng, 2012, Bresciani, Vrontis, Thrassou, 2012 and 2013).

Thompson and Strickland (2001) pointed out five main tasks of strategic management: development of a strategic vision, setting objectives, crafting a strategy, implementation and execution of the strategy, and evaluated, monitored as well as made corrective adjustments to the strategy (see Figure 1). It is believed that environmental concerns may play an important role in companies' strategy management process. The first task of strategic management is development of a strategic vision. Managers must be able to predict the future and have a long-run vision on the businesses to

be present and of the organization's structure. These two factors must serve as guidelines for companies' activities. However, unlike corporate mission statements, a strategic vision implies a deep analysis of company's capabilities and markets (actual and potential). It is now commonly accepted that companies must be managed in a value and knowledge making perspective (Tardivo, 2008; Raymond, Fazey, Reed, Stringer, Robinson, Evely, 2010). Thus, managers must clearly understand what a company and businesses' value drivers are- the factors that may be an important determinant of a company's performance and on value creation.

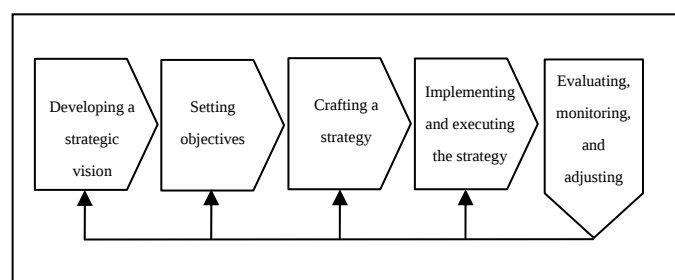


FIG. 1 THE FIVE TASKS OF STRATEGIC MANAGEMENT.

SOURCE: ADAPTED FROM THOMPSON AND STRICKLAND, 2001, P. 7.

Only by correctly recognition of the major trends in the external and internal companies' environment as well as the possible impact of companies' products and operations on them, will managers be able to reduce the risk in the decision-making process and in developing a strategic vision (Polasky, Carpenter, Folke, Keeler, 2011). With the strengthen role of environmental concerns in society, environmental drivers must not be neglected as well. Certainly, "the neglect of environmental drivers could mean missing an important element of competitive advantage" (Sugar and Descano, 1999, p.108) or misleading companies real threats.

Company Strategy and The Environment as a Factor Capable of Shaping It

Actually, companies have been more and more pressured to integrate environmental matters in companies' business functions (Babiak and Trendafilova, 2011). This integration labelled Corporate Environmentalism can be defined as "the organization-wide recognition of the legitimacy and

importance of the (...) environment in the formulation of organizations' strategy, and the integration of environmental issues into the strategic planning process" (Banerjee, 2002, p. 181). Environmental regulation was the first force strong enough to coerce companies to incorporate the environment into companies' decision-making process, forcing them to comply with pollution standards and/or to pay the price for their pollution outcomes. Similarly various stakeholder groups are growingly pressing companies to adopt environment friendly practices and to express environmental responsiveness and performance (Jones, 2011). Environmental considerations, as well as social ones, may lead companies to consideration of a wider stakeholders' definition which may include shareholders, employees, costumers and consumer groups, regulatory agencies, local communities, non-governmental organizations, media, general public, suppliers and competitors, and even others. As modern management theory points out that each one of these stakeholders' groups has specific expectations on companies' goals and, also for this reason, companies' top management must be sensitive to all of them (Golinelli, 2000; Tardivo, 2002).

Shareholders and the financial community are showing increasingly attention to environmental performance, as they perceive its possible impacts on companies' value. Weak performance in this field may means a large amount of fines and high liabilities for companies, with a negative repercussion in their value as a consequence. On the contrary, superior environmental performance might be considered as an indicator of healthy economic performance in the future. In effect, the way a company faces environmental challenges may play a major role in its reputation. Being a crucial intangible asset for companies' value, corporate reputation must be cautiously managed as it can leverage financial performance - stronger reputation can allow firms to easier access capital markets and to charge "premium prices" for their products and services (Gilley, Worrell, El-Jelly, 2000).

Consumers, alerted mainly by non-governmental

organizations' campaigns, becoming more aware of the impacts of companies' activities and products begin to take themselves as a differentiation factor in their acquisition process. The "green consumers' phenomenon" has been gaining some relevance and imposing companies new opportunities for product development and new niche markets opening (Pearce and Barbier, 2000) as the demand for "green products" and environment friendly corporate behaviour rises.

One other reason for corporate environmentalism is the achievement of new companies opportunities and the reinforcement of companies' competitive position (Yang, Lin, Chan, Sheu, 2010; Hofer, Cantor, Dai, 2012). The integration of environmental concerns in business functions can be a major opportunity for companies' processes and products' re-evaluation. With the purpose of reducing processes' environmental impacts, cost reduction opportunities can be found with the enhancement of resource productivity – through a more efficient inputs' use and costly materials' substitution – and the achievement of a higher production yield (Porter and Van der Linde, 1995). Some good examples of cost minimization procedures are energy conservation, materials recycling and waste minimization, all of which augment companies' economic efficiency. If the innovation pressures caused by environmental awareness is considered, it will be easier to convert environmental investments in profitable investments and to deliver more valuable products to consumers.

Even the rising environmental considerations in the business field bear in mind, its integration cannot be made in a universal way. In effect, environmental strategic attitude and environmental integration degree may differ among companies and sectors, according to their own characteristics. Environmental strategic attitude can be characterised as reactive or proactive (Azzone, Bertelè, Noci, 1997; Larsen, 2000). In companies adopting a reactive strategy, environmental concerns are incorporated as a way to avoid negative impacts. Consequently, those companies aim to remain neutral towards environmental pressures. In contrast, companies,

which have recognized the opportunities provided by environmental management to pursue proactive strategies aim to enhance their competitive position, trying to anticipate market and environmental pressures' changes, and introducing new products and technologies to meet them (Valdani, 2000). This latest strategy type may have the ability to sustain a competitive advantage (Angell and Klassen, 1999).

Of course, it may not be privately optimal for every firm in an industry to choose to go green, as going green can be costly and some consumers may prefer cheaper, non-green brands. This can lead to non-green brands coexisting with green brands in the same market, which is consistent with the strategic group literature. Porter (1985) provided a traditional view of strategic groups, and Preston McAfee (2002) provided an alternative viewpoint.

All this ample scope of matters ought to be taken into account during the strategy vision development stage if strategy formulation and management are to be real instruments in corporate and businesses management.

After the development of a strategic company's vision, companies must set objectives, especially specific performance targets, and whenever it is possible for each company's unit. These performance yardsticks allow managers to understand what degree the strategy is being followed and if the defined outcomes are achieved. Continuously and vigilantly monitoring them, managers will be capable of understanding companies outcomes and, if it reveals necessary, correct corporate route and policies.

Management theory has pointed out two different types of performance yardsticks: financial performance and strategic performance (Thompson and Strickland, 2001). Due to the increased importance of environmental concerns in companies' actions, environmental performance yardsticks may also be set and monitored. By setting these three types of goals, companies try to keep investors confidence, to improve their competitiveness and to reduce risks. Long-term and short-term (measurable) objectives must be set in order to translate companies' strategic vision into effective paths for management actions.

Another important feature in objectives setting is that they must be defined high enough to challenge the entire firm to achieve them. However, to promote the endeavour of company's human resources, performance targets must be set throughout the entire organization - at department, business and product levels, among others. For each organization's unit financial, strategic and environmental targets (when it is appropriate) must be defined in a coherent way with company's objectives.

Moreover, economic performance and environmental performance can not be studied separately. On the cost side, for example, one can regard a production process of a single product firm as one that generates two things: output (q) and pollution (x). More q means more x . For a given total expenditure (cost), less pollution means less output. More complicated processes would produce a variety of environmental concerns, but the point is that there are tradeoffs between production and these environmental concerns. Estimation of a production function or a cost function that controls for both q and x can be used to identify such tradeoffs (Färe and Grosskopf, 2005).

After that two initial steps, the next task of strategic management is to build a strategy, a joint of actions and procedures capable to make the company achieve the defined goals and performance targets, for the entire organization and, once again, for each company's unit and business. Figure 2 shows some characteristics of different strategy levels. However, more than a static document, it ought to be flexible enough to allow companies to react to new market and technological evolutions and to respond to opportunities and threats unpredictable at first. Hence, strategy making is both a pro-active and a re-active process. These three first steps are the basis for the construction of an important document in companies' management - the Strategy Plan - as they define company's strategic vision and mission, company's objectives and targets and decide company's strategy to achieve its aims.

As shown in Figure 1, the fourth step in the strategic management process is the implementation and

execution of the previously defined strategy, which is the hardest part of the entire process since it absorbs a



FIG. 2 - THE STRATEGY-MAKING PYRAMID SOURCE: ADAPTED FROM THOMPSON AND STRICKLAND, 2001, P. 52; BANERJEE, 2002; KOTLER AND KELLER, 2011.

wide range of questions that must be addressed.

This stage can be subdivided in two sub-steps: the implementation of the strategy - defining the way the strategy may be put into action - and its execution - the monitoring process to the extent in which the defined strategy is being followed and the conduction of actions to improve company or strategic business unit's performance. Thus, as the well known company's organization, managers must primarily define the appropriate activities in such a way that the defined strategy can be put into action and followed in a superior way. Subsequently, strategy may be executed following the prior defined actions. Higher attention should be given to the development of companies' capabilities and resource allocation through company's entire organization in such a way that each unit or business can perform their activity without avoidable constraints. Company's culture and leadership and the motivation of firms' human resources throughout the company may also be important aspects to take into account all through strategy execution.

The last step of this process is the continuous supervision and evaluation of company's performance and the taking of corrective measures when necessary, according to changes in its external environment and the successful evolution of strategy actions. However, being the final step does not mean

the last one to be performed. Strategy management is much of a non-stop process where performance evaluation plays a major role since it can be the genesis of changes and corrections in other stages such as strategic vision or objectives definition, which allows companies to perceive companies internal and environment evolution helping managers, consequently, to become conscious of firms' real performance and, when necessary, to revise and update companies' strategy.

Company Situation Analysis – a Guide for (Environmental) Strategy formulation

To accurately integrate environmental concerns in a company's strategy and management, and to capture its entire potential, managers must develop a set of tools which may enable them to evaluate in a proper way company's real impacts in the natural environment (and also in firms' image and reputation to consumers and regulators) and company's competitive position in the market, even in what concerns ecological and sustainable performance. Only by possessing the appropriate instruments, can firms identify their actual status and define the actions that need to be put into action in order to achieve companies' goals. One of the most popular and worldwide used instruments in companies' evaluation is SWOT analysis which gives managers a vision of firms' external and internal environments in detail through an inventory of the foreseen threats and opportunities that the surrounding milieu can bring, and also of firms internal capabilities. However, for many years, managers and market researchers have neglected to place the environment as a factor within the tables of this well-liked instrument or even to make a specific SWOT analysis for environmental concerns in industries where the environment can play a major role such as chemicals and energy sectors, for instance. At best environmental regulation and fines were set as a threat, but they were rarely conceived as an opportunity even in companies' capabilities in facing environmental matters. A well-conceived SWOT analysis is the basis for an accurate company's situation analysis.

An important part of environmental concerns in business functions, but usually difficult to measure, is environmental costs and impacts. As previously stated, cost reducing opportunities are usually opened when environmental concerns arise in business processes and products' analysis (Porter and Van der Linde, 1995). That's why some instruments such as environmental reviews, eco-auditing and eco-efficiency assessment have been experiencing high growth of popularity. While an environmental review aims to appraise companies' environmental performance, being in many organizations the first step for a wider use of environmental management tools (Garrod and Chadwick, 1996), environmental audits involve a continuous process of performance evaluation. Eco-efficiency assessment initiatives offer companies good opportunities because they seek material and energy intensity minimization, to enhance material recyclability, to maximize the use of renewable resources and to extend product durability (Greeno, Hedstrom, Shopley, 1998); and objectives that may have a double dividend - the enhancement of environmental and economic performances.

The use of these new instruments helps managers to have an effective evaluation on companies' impacts and the total costs of their processes and products.

Environmental performance and costs must also be considered in a strategic perspective. Therefore, managers must try to appraise companies' position concerning these two items, comparing the cost and environmental impacts of each company's activity against its competitors, and trying to recognize sources of (dis)advantages and opportunities for cost and emissions' reductions, and for differentiating company's image and products towards its competitors. An important instrument for this analysis is a company's Value Chain that, as we can see in Figure 3, can be adapted to integrate environmental management activities. This tool offers a systematic framework to analyse business activities in all its stages and to give good tips about what environmental actions can contribute to a company's goals. Taking the actions listed, managers go a step further in companies' evaluation process and can try

to enhance companies' competitive position taking advantage of cost reduction opportunities and differentiating companies' products in environmental terms. As much deeper the "green" differentiation within the value chain is and as better-developed companies' resources and "green" competencies are, much trickier to imitate will become differentiating factors. For Roy and Vézina (2001) "differentiation (...) should be translated into virtually every activities along a company's value chain. Integrated and driven through the organization in such a manner, the differentiating features are linked to a complex system, where resources are interconnected with skills and knowledge such as management controls, technical development and human resources management" (Roy and Vézina, 2001, p. 346).

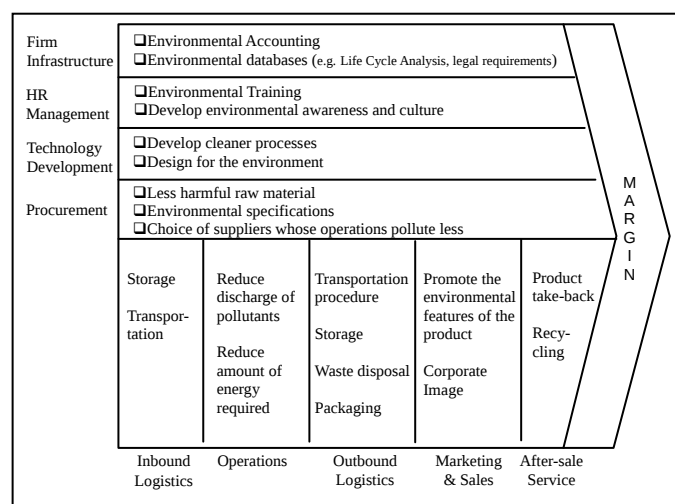


FIG. 3 - THE VALUE CHAIN AND ENVIRONMENTAL MANAGEMENT SOURCE: ADAPTED FROM EPSTEIN AND ROY, 1998.

After scanning a company's value chain, through the disaggregation of company's operations, an accurate identification of costs and environmental performance is needed in order to do a strategic cost and impacts analysis. The measurement and collection of this kind of data is not a simple task. Some techniques such as Activity-Based Costing (ABC), and full environmental cost accounting and Life-Cycle Assessment can allow managers to link costs (and environmental impacts) with the performance of specific activities. Progressively, companies are adopting activity-based cost accounting in order to quantify the true and full costs of companies and strategic business units'

activities. While traditional accounting identifies the costs of broad expenses' classes, ABC, through the analysis of company's activities, fully identifies the costs associated with performing each one of them. By measuring costs correctly managers can have a precise notion of business units and product costs and will be able to take better strategic and pricing decisions (Tardivo, 1995).

Life-cycle assessment of the company's products and processes is another important environmental management tool in this quest to properly evaluate the company's environmental impacts and costs, which tries to integrate all environmental impacts of company's products during the production, consumption and post-consumption stages. Overstepping the traditional environmental management perspective, which addresses the environmental impacts during the production process, life-cycle approach focuses on all environmental impacts of company's products (even outside firms' boundaries), where other functions rather than the productive stage are assumed higher weight (e.g. raw materials purchasing, marketing, research and development, product final disposal). The adoption of this new approach involves the recognition of firms impacts on the natural environment (and this can be better matched with a firm's total physical system), recognizing and taking advantage of resource use opportunities - due to process revaluation, design for the environment as well as waste management - and effort coordination with up and downstream relationships (company's suppliers and consumers), and that can involve some recent and fashionable actions such as product take-back, responsible disposal and recycling (Sharfman, Ellington, Meo, 1997). After identifying all environmental impacts (costs and benefits) of a company, Life-cycle costing attaches a monetary measure to each one of them. Thus, by associating life-cycle costing with activity-based costing, managers possess now a better measure of real product costs (even those associated with product take-back and disposal) (Epstein, 1996).

Managers, possessing and applying these techniques, can get a clearer picture of a company's real costs and environmental impacts. One other application for this relevant information, other than cost risk management and cost reduction, is the benchmark of costs and

performance of products and units against firm's competitors. Benchmark allows managers to compare their company's costs and performance when a certain activity is performed against market rivals (Thompson, Strickland, 2001). Thus, a firm's position regarding its direct competitors can be appraised and the best practices in the market in performing a certain activity can be identified. Latter, a set of actions in order to keep or improve a company's positioning can be defined. The major problem with benchmark, also in the environmental field, is the difficulty in collecting data. Indeed, many times this task can only be performed through published reports, companies' websites and other self divulged information, and research institutions' publications.

As most companies acting in various markets and businesses, strategic management need to posses tools to evaluate their different performance and to develop specific strategies accordingly to their own needs.

Portfolio models are important instruments to evaluate strategic business units (SBU) or products' competitive position. Aiming to integrate economic and environmental performance, traditional Boston Consulting Group (BCG) and General Electric (GE) models can be adapted originating from the Ecologically-Oriented Portfolio Matrix (Ilinitich and Schaltegger, 1995) and the Environment-Strategy Matrix (ES) (Jose, 1996), respectively. As the BCG model can be considered a particular case of GE model (Kotler and Keller, 2011), we opted to explain the latest in more detail (Figure 4).

While in the original GE model, the two dimensions considered are market attractiveness and business strength (or competitive position), ES matrix uses environmental attractiveness (measured through SBU's internal and external environmental impacts) and market attractiveness (which now also includes competitive position). Market attractiveness is a

		Environmental Attractiveness		
		High	Medium	Low
Market Attractiveness	High	1. Protect Leadership - Invest to grow at maximum rate - Concentrate efforts on maintaining core strength	2. Invest to Improve - Move to box 1 by resource substitution - Build on strengths - Reinforce environmentally vulnerable areas by changing technologies	3. Invest Selectively <i>Low risk</i> - Invest to move to Box2 - Improve environmental performance through innovation and R&D <i>High risk</i> - Divest
	Medium	4. Invest to Grow - Invest for market growth - Invest heavily in attractive segments to move to Box 1 - Build up core competencies to counter competition - Emphasize profitability by resource substitution	5. Build Selectively - Protect existing share - Make investments where industry prospects are high	6. Improve or quit <i>Low risk</i> - Investment in expansion linked to potential: maintain those in pollution control <i>High risk</i> - Divest/dispose if unable to move to Box 5
	Low	7. Protect & Refocus - Manage for current earnings - Concentrate on attractive segments. Try to move to Box 4	8. Management for Earnings / Harvest Selectively - Protect existing positions - Harvest where future prospects are low - Minimize investment in expansion	9. Divest - Sell to maximize cash value

FIG. 4 - THE ENVIRONMENT-STRATEGY MATRIXSOURCE: ADAPTED FROM JOSE, 1996.

combination of several factors - such as market factors, technological factors, economic factors, company' competitiveness and competitive intensity - and tries to characterize SBU's long-term economic attractiveness. If a three-grade scale is considered (high, medium and low) for both dimensions, a nine-cell matrix will be acquired, like in the original GE model. Plotting company's different SBU in the matrix according to this two dimensions (after weighting its constitutive factors) managers have now an instrument that allows them to strategically classify the various SBU and to craft specific strategies for each one of them. SBU positioned in cell 1 are the most attractive ones because they are the most sustainable and the best in a strategic point of view as they present high environmental and market attractiveness simultaneously. On the other hand, SBU in cell 9 are the most unattractive for the reason that they present low marks in both dimensions. Typically, companies should divest this kind of SBU because they are a possible source of liabilities and bad reputation with, at the same time, an unattractive market position.

In addition, in ES matrix horizontal and vertical movements within it are possible. Horizontal movements indicate changes in SBU environmental impacts, while vertical ones mean changes in market conditions.

This adapted matrix can help managers to evaluate the business (or product) portfolio performance of the entire company (and relatively to its competitors) contribute to the enhancement of strategic formulation and corporate portfolio balancing. For SBU positioned in the right side of the matrix, the strategy should be focused on the reduction of their environmental impacts through a better use of environmental management instruments (such as resource substitution, product and processes changes, design for the environment and green marketing). Moving leftwards, the competitive position of the SBU increases in sustainable and environmental image terms. For SBU already present in the left part of the matrix, the defined strategies should have the ability to keep their positioning and, eventually improve

their market attractiveness. ES matrix is also a good instrument in risk management as it allows managing a portfolio in a balanced way, avoiding to leave too many SBU in the right side of the matrix and eliminating weak businesses and strengthening good ones. These two adapted portfolio models present the advantage of integrating economic and environmental performances into the same instrument. However, their use must be cautious since they keep the same weaknesses of traditional portfolio models (Jose, 1996; Kotler and Keller, 2011).

Conclusions

In the last decades, managers have dealt with the continuous increase of environmental corporate costs and, at the same time, with the important boost of public environmental awareness. As an answer, managers in a growing number of enterprises and research centres have been trying to integrate environmental concerns in company's management decision-making processes. Yet, the lack of knowledge about environmental impacts as well as environmental cost identification lead to the failure that managers take correct strategic decisions. Nowadays, nevertheless, the tools to properly identify and measure environmental costs and to strategically evaluate both companies and businesses' environmental performances do exist, many of which used for several years can be adapted for environmental management purposes (Epstein, 1996), permitting managers the alignment between project and environmental management practices (Gluch and Räisänen, 2012).

In this paper, we have tried to present some of the instruments that can be used in modern environmental management at the corporate level and we have shown how some widely known management techniques (such as SWOT analysis, value chain analysis, activity based costing and portfolio models) can become useful instruments to integrate the environment into business functions. Actually, as management terminology is used, they become easier to understand for company and business' managers, and even for senior executives -

which are rarely prepared to discuss environment matters in a strategic business context. There are many developments still in need. However it is believed, since “environmental management is good business” (Epstein, 1996, p. 53], that the development of new tools, to improve managers capabilities in identification of environmental drivers and in decision-making, will continue in order to transform environmental management into an ordinary management field.

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